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The Determinants of Bank Profitability: The Case of Tunisia

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Abstract

Using bank level data this paper examines how bank's specific characteristics and macroeconomic indicators affect the profitability in the Tunisian banking industry over the period 1990–2008. The results indicate that the more profitable banks are those higher amount of capital and lower operating costs. Furthermore, it appears that private banks tend to perform better than state owned ones. Despite the great importance given to the board of directors, it doesn't have a dominant role in the Tunisian commercial banks. Finally, turning to macroeconomic conditions and its impact on banks' profitability, we find that the real interest rate has a positive effect on bank profitability.

Key Words: *Bank profitability; Panel data; Tunisia; Banks*

JEL classification: D82, G2

Introduction

Since the 1980s, the banking sector has experienced significant changes. These rapid changes caused by the phenomenon of financial liberalization, which has emerged in the United States and that spread later in some countries of the world such as the Japan, the France, the Spain, the Turkey, the Australia,... etc, the deregulation and the technological advances increase more and more the fragility and the risk of the banking system. This rise of risk could lead to bank failures that affect not only their own partners but also other banks and as a result, it has a systemic impact on the economy in general. This prompted banks to adopt new strategies to survive and follow the evolution of the world economy.

In order to follow these developments, the Tunisia started since 1987 a broad programme of reforms of the financial market (Zamiti, 1998; Mouley, 2000). These reforms constitute one of the essential pillars on which the structural adjustment programme adopted by the Government of Tunisia from 1986 is supported. They have been implemented to broaden and deepen the financial market structure and improve its efficiency. The most important measures concern the banking reform including the elimination of prior

authorization and the refinancing agreement and the liberalization of the deposit rates and the lending rates. All these measures have radically transformed the environment of Tunisian banks: competition for obtaining funds and the granting of credits is amplified, similarly the possibility given to foreign banks to settle on the banking market helped to introduce more competition in the banking system.

As part of these restructuring, it seemed necessary to focus our research on profitability which is a major element of bank performance which worried bankers. However, the objective of any financial intermediary, in particular commercial banks, remains since always the maximization of its profit and particularly after the deregulation of the interest rates, swelling provisions and the technological developments which in turn caused certain difficulties.

The profitability of a bank represents its ability to identify from the wealth that it creates a level of profit that enabled it to permanently continue its activity. As such, it is important to know the determinants of the profitability of the banks in order to allow them to better understand the factors that affect their profitability.

Our analysis aims then to find among the profitability factors those that appear most relevant to explain the profitability of the Tunisian commercial banks and this by referring to previous studies by Bourke (1989) and Molyneux and Thornton (1992) and recently by Athanasoglou, Delis and Staikouras (2008) and Sayilgan and Yildirim (2009).

Our sample will consist of 10 Tunisian commercial banks observed over the period 1990-2008.

The remainder of the paper is organized as follows. Section 2 discusses the existing literature on bank profitability. Section 3 describes the dependent and independent variables and the data used in the study. The empirical model we employ is described in section 4. The empirical results are presented in Section 5. Finally, Section 6 concludes our study.

Literature review

In the literature, bank profitability is affected by a set of internal and external determinants. Studies dealing with internal determinants employ variables such as capital ratio, operating expenses, liquidity ratio, size, ownership structure, characteristics of the board of directors and quality of assets.

The capital ratio is one of the internal factors of the bank profitability, which has been the subject of several empirical studies: previously presented by Lloyd-Williams, Molyneux and Thornton (1994) and Berger (1995) and recently presented by Samad (2008) and Chortareas, Garza-Garcia and Girardone (2010). The majority of empirical results affirm the existence of a positive relationship between the capital ratio whether it's for American, European or other banks. This may indicate that well-capitalized banks support lower expected bankruptcy costs for themselves and their customers, which reduce their cost of capital and are supposed to be capable of providing prevention funds to avoid any risk of uncertainty.

Operating expenses are also a very important determinant of profitability. While some empirical studies insist on the negative effect of the operating expenses on the bank profitability because efficient banks are expected to operate at lower costs (Havrylchyk and Jurzyk, 2005; Dietrich and Mattig, 2008; Mansouri et Afroukh, 2009), other empirical studies support rather that the impact can be positive to the extent that operating expenses boost the productivity of banks and their profitability and, in order to maximize the profit, banks tend to incur additional operating expenses, thus justifying the variation in the same direction between overhead costs and the bank profitability (Yao, 2002; Gerlach, Peng and Shu, 2003; Ben Naceur and Goaied, 2008).

The liquidity ratio has been in turn the subject of several theoretical and empirical studies. In a pioneering study, Lloyd-Williams, Molyneux and Thornton (1994) have tried to examine the relationship between the liquidity ratio (ratio of total loans to total deposits) and the profitability of commercial banks in Spanish during the period 1986-1988. However, these two authors expect a positive and significant relationship between this variable and the bank profitability. In their opinion, more the value of this ratio is high, more the bank realizes profits. On the other hand, more the value of this ratio is low, more the bank holds liquid assets. However, liquid assets are always associated with low rates of return which allows to think that an important liquid asset is synonymous with low profitability. Thus, the results of their empirical model show

that the liquidity ratio has a positive effect on bank profits. This can be explained by the fact that the increase in this ratio is most beneficial to the improvement of profits from Spanish banks. This result is consistent with analyses of Pasiouras and Kosmidou (2007), Samad (2008) and Flamini, McDonald and Schumacher (2009) who have also found a positive and significant relationship between the liquidity ratio and the profitability respectively in Europe, in Bangladesh and in sub-Saharan Africa.

Given the importance of the variable size in the banking environment, several authors such as Mendes and Rebelo (2003), Iannotta, Nocera and Sironi (2006), Athanasoglou, Delis and Staikouras (2008), Chortareas, Garza-Garcia and Girardone (2010),... etc have attempted to study its effect on bank profitability. However, these authors have shown that the size and profitability of banks are positively correlated suggesting the existence of scale economies. This result implies that large-sized banks benefit from diversification opportunities and an implied warranty which reduces their cost of funding on the one hand and enables them to invest in more risky assets on the other hand.

The ownership structure is as important as the previous ones in the determination of the level of profitability of banking institutions. However, most empirical studies (Aburime, 2008; Samad, 2008; Mamoghli and Dhouibi, 2009; etc...) found that the dummy variable (equal to 1 if the bank is public and 0 otherwise) representing the public property negatively affect the bank profitability. Thus, the presence of the State as a majority shareholder gives it the possibility to exercise greater power what affects the freedom of action and the risk taking and makes banks less profitable.

The quality of the assets is another specific internal factor to the bank, which has a significant effect on the bank profitability. However, the study of the impact of this variable on the bank profitability becomes a care view the increase in credit risk (Wong, Fong, Wong and Choi, 2007; Athanasoglou, Delis, and Staikouras, 2008). It is true that the loans granted by a bank are an important source of income but it depends on the risk inherent in the held loans. As a result, more the bank is exposed to a high level of loan risk, more there will be an increase of unpaid loans (resulting in an increase in provisions for non-performing loans) and therefore a decrease in the profitability (Park and Weber, 2006; Vong and Chan, 2009).

Other empirical studies have attempted to examine the relationship between the board of directors and the bank profitability. The board size, the presence of each type of directors (the representatives of the State and public institutions, independent, institutional and foreign) as well as the dual role of CEO and board president can have a positive or negative impact on the bank profitability.

Concerning the impact of the board size on the bank profitability, Lipton and Lorsch (1992) and Jensen (1993) advocate the adoption of a smaller board of directors. Such a board allows avoiding potential conflicts, reducing costs and facilitating decision making. In addition, a small board has a more efficient control function compared with the larger board which presented difficulties as for the coordination of its efforts in supervision and that encourages managers to pursue their own interests. Indeed, if the board size increases, agency problems increase and the board of directors knows, despite the variety of available skills, more internal conflicts opening the door to more influence and manipulation on the part of the CEO (Boujenoui, Bozec and Zeghal, 2004).

The majority of empirical studies concluded that the strong presence of State administrators in the board of directors led to a considerable decrease of the bank profitability (Creane, Goyal, Mobarak and Sab, 2004; Megginson, 2005; Berger and Di Patti, 2006; Cornett, Guo, Khaksari and Tehranian, 2010).

A considerable number of empirical studies confirm the favorable impact of the disciplinary role exercised by the institutional directors (Pound, 1988; McConnell and Servaes, 1990; Whidbee, 1997; Berger and Di Patti, 2003). Indeed, the latter have, next to their important financial means, particular skills enabling them to exercise an active control of the activities of the leader who reduced agency costs and made increased the profitability.

Empirical work like Fama and Jensen (1983), Rosenstein and Waytt (1990), Cotter, Shivdasani and Zenner (1997), Kor and Misangyi (2008) and Schiehll and Bellavance (2009) reveal that the independent directors (i.e. who are neither employees, nor shareholders, nor members of shareholder family of the company, nor even former leader retired) exercise a function of the active control of the leaders activities in view of their

reputation in the work market of the senior managers. Thus, these administrators will act in the interests of the company and therefore increase its profitability.

Some other authors like Oxelheim and Randoy (2003) and Beck and Levine (2004) attempted to measure the influence of the proportion of foreign directors within the board of directors on the bank profitability and showed that the increase in the number of foreign directors in the board of directors promotes positively the profitability. Thus, strong-foreign-owned banks have a greater opportunity to offer some of their services to foreign clients not easily accessible to local banks.

Most of the empirical studies that have focused on the effect of duality, that is the president of the board of directors is himself the president CEO, on the bank profitability argue that the duality can increase significantly the power of the leader in the board which creates a discrepancy between his personal interests and the interests of the shareholders of the bank (Rechner and Dalton, 1991; PI and Timme, 1993; Gary and Gleason, 1999; Kaymak and Bektas, 2008).

Turning to the external determinants of bank profitability, it should be noted that the macroeconomic variables normally used are the inflation rate, the growth rate of real gross domestic product (GDP) and the real interest rate.

The change in the general price index, reflecting inflationary aspects of the economy, can affect the costs and incomes of any organization including the banking firm. However, the effect of the rate of inflation on the profitability of banks depends on whether the inflation is anticipated or unanticipated (Perry, 1992; Ben Naceur, 2003; Flamini, McDonald and Schumacher, 2009). If inflation is completely anticipated, banks can timely adjust interest rates, which consequently results in revenues that increase faster than costs, with a positive impact on profitability. On the other hand, if inflation is unanticipated and banks are sluggish in adjusting their interest rates then there is a possibility that bank costs may increase faster than bank revenues and hence adversely affect bank profitability.

The estimation of the impact of the economic growth - measured by the growth rate of real gross domestic product - on the bank profitability often found common ground between economists. Several authors confirm the existence of a positive relationship between the economic growth and the growth of bank profits (Kosmidou, Tanna and Pasiouras, 2005; Claeys and Vander Vennet, 2008; Heffernan and Fu, 2008; Vong and Chan, 2009). In their opinion, the economic growth allows channeling the financial resources which come from households and companies and thus develops the transactions with the banking institutions. Similarly, the wealth accumulated through the economic growth incites to consume, save and invest more and thus increase the bank profits.

The real interest rate is another macroeconomic factor which has been used in several studies such as those of Demerguc-kunt and Huizinga (1999), Dinger and Hagen (2004) and Vong and Chan (2009) who found that the real interest rate has a positive effect on the bank profitability. However, the changes in the market conditions affect the real interest rate which certainly has a direct effect on the profitability of the banking firms.

Research and Methodology

This paper follows in the footsteps of Bourke (1989), Molyneux and Thornton (1992), Athanasoglou, Delis and Staikouras (2008) and Sayilgan and Yildirim (2009).

The empirical test is concerned with the determinants of profitability of the Tunisian commercial banks. We use capital ratio, the general operating charges, the liquidity ratio, the size of the bank, the ownership structure and the characteristics of the board of directors (the board size, the representatives of the State and public institutions, the institutional administrators, the foreign administrators and the duality) as proxies for internal indicators. Meanwhile, macro-economic measures (the inflation rate, the growth rate of real gross domestic product and the real interest rate) are used as external factors. A linear equation relating the performance measures to a variety of internal and external factors is displayed in equation 1:

$$\mathbf{Per_{it}} = \mathbf{f(CB_{it} + M_t)} \quad (1)$$

Where:

i = 1, 2,..., 10 n = 10 (individual)

t = 1990, 1991,…, 2008 T = 19 (time)

$\mathrm{Per_{it}}$: measure the performance for bank i at time t [Return On Assets (ROA) in our case];

$\mathrm{CB_{it}}$: represents the matrix of the variables determining the internal banking characteristics of bank i at time t (RC, CGE, RL, TAIBQ, GOVT, TAICA, ADPUB, ADINST, ADETR, DUAL);

$\mathrm{M_t}$: is considered to be the matrix of the macro-economic variables (PIB, INF, TIR).

Econometrically, the regression equation is specified as follows:

$$\mathbf{Y_{it} = \alpha_i + \beta X_{it} + \varepsilon_{it}} \quad (2)$$

i = 1,…, n t = 1,…, T

Where:

$\mathrm{Y_{it}}$: indicates the dependent variable;

$\mathrm{X_{it}}$: represents the vector of k explanatory variables;

ε_{it} : is the disturbance term with ε_{it} $\rightarrow N(0, \sigma_\varepsilon^2)$;

α_i : is the bank specific effect which is taken to be constant over time.

The specification of the model above implies that the obtained coefficients are identical for the concerned banks. However, it is possible to think that there are differences between banks. Therefore, it should be adopted a specification bringing out of individual effects.

Thus, under the homogeneity hypothesis of individuals that make up the sample ($H0 : \alpha_1 = \cdots = \alpha_N = \alpha$) while under the heterogeneity hypothesis ($Ha : \alpha_1 \neq \cdots \neq \alpha_N$).

By Fisher's test, we accept the rejection of the hypothesis H0 and therefore our model is either individual fixed effects or random individual effects. The specification of these effects, according to Hausman test (1968), shows us that the model that suits the structure of the sample data is random effects.

The random effects model specifies that α_i is a bank specific disturbance:

$$\mathbf{Y_{it} = \alpha_i + \beta X_{it} + \varepsilon_{it}} \quad (3)$$

Where: $\alpha_i = \alpha + \mu_i$ avec $\mu_i \rightarrow \mathrm{IIN}\ (0, \sigma_\mu^2)$

Thus, the empirical specification captures the following structure:

$$\mathrm{ROA_{it}} = \alpha_i + \beta_1 \mathrm{RC_{it}} + \beta_2 \mathrm{CGE_{it}} + \beta_3 \mathrm{RL_{it}} + \beta_4 \mathrm{TAIBQ_{it}} + \beta_5 \mathrm{GOVT_{it}} + \beta_6 \mathrm{TAICA_{it}} + \beta_7 \mathrm{ADPUB_{it}} + \beta_8 \mathrm{ADINST_{it}} + \beta_9 \mathrm{ADETR_{it}} + \beta_{10} \mathrm{DUAL_{it}} + \beta_{11} \mathrm{PIB_t} + \beta_{12} \mathrm{INF_t} + \beta_{13} \mathrm{TIR_t} + \varepsilon_{it} \quad (4)$$

$$\forall\, i \in [1, 10]\ ;\ \forall\, t \in [1990, 2008]$$

Empirical Data

Data Resources

The data resources for this study were obtained from the Professional Association of the Banks of Tunisia and the Central Bank of Tunisia. The data are annual and cover the period 1990 to 2008.

The information about the characteristics of the board of directors is collected from the annual activity reports of the banks.

In addition, the data concerning the inflation rate, the growth rate of real gross domestic product (GDP) and the real interest rate were extracted from the National Institute of Statistics.

The sample includes 10 commercial banks. We retained only the commercial banks which have a regular activity over the period under consideration. The sample of banks retained includes three public banks, three private banks and four foreign banks. The public banks are the Tunisian Banking Company (STB), Bank of Housing (BH) and the National Agricultural Bank (BNA). The private banks are Arab International Bank of Tunisia (BIAT), Bank of Tunisia (BT) and Amen Bank (AB). The banks with foreign participations are the Banking Union for Trade and Industry (UBCI) and the Arab Tunisian Bank (ATB), ATTIJARI Bank of Tunisia and the International Banking Union (UIB).

Definitions of Variables

Dependent variable

The dependent variable used explaining the profitability of the Tunisian banks is the economic profitability, ROA (Return On Assets). It is calculated as net results of the bank over total assets.

Independent variables

The independent or explanatory variables can be grouped into internal and external variables.

In our analysis of the determinants of the Tunisian bank profitability, we take into account all the internal and external variables mentioned in the level of the literature review except the variables, the number of independent directors and the quality of the assets, which here are an exception because of the lack of disclosure of information about this subject.

The internal variables

We choose as a measure of the degree of capitalization **(RC)**, the ratio of the equity to total assets delayed of a period. To measure the impact of the general operating charges **(CGE)** on the Tunisian bank profitability, we use the ratio of operating expenses and personnel fees to total assets. It is to clarify that the liquidity ratio (RL) taken into account by the majority of the empirical work is given by the ratio between the total loans and the total deposits of a bank.

The size of the bank **(TAIBQ)** is also included as an independent variable to account for size related economies and diseconomies of scale. In most of the finance literature, the total assets of the banks are used as a proxy for bank size. However, since the other dependent variables in the models such as ROA were deflated by total assets it would be appropriate to log total assets before including it in the model.

The relationship between the ownership structure of the banks **(GOVT)** and the profitability is examined through the inclusion in the model of a binary dummy variable which is equal to the unit when the bank is state owned and equal to zero if it is privately owned.

Turning to the characteristics of the board of directors, we use the total number of administrators as a measure of the board size **(TAICA)**.

Regarding the representatives of the State and public institutions **(ADPUB)**, we use the ratio of the number representing the State and public institutions to the total number of administrators.

The ratio of the number of institutional administrators to the total number of administrators is used to measure the impact of institutional administrators **(ADINST)** on banks profitability.

The foreign administrators sitting in the board of directors **(ADETR)** is calculated as the number of foreign administrators divided by the total number of administrators.

We finally examine how the profitability of banks is related to the duality **(DUAL)** using a binary dummy variable which takes the value of '1' if the president of the board of directors is himself the president CEO and the value '0' otherwise.

The external variables

Turning to the external determinants, three macroeconomic variables have been considered in this study. These variables are the inflation rate (INF), the growth rate of real gross domestic product (PIB) and the real interest rate (TIR).

We choose as a measure of inflation **(INF)**, the growth rate of the consumer price index.

PIB is among the most commonly used macroeconomic indicators and it is a measure of total economic activity within an economy. The economic growth is measured by the growth rate of real gross domestic product.

Furthermore, to control the macroeconomic environment, we include the real interest rate variable **(TIR)** which is measured as the difference between the nominal interest rate and inflation rate.

Results and Discussion

This section provides empirical evidence on the relationship between the dependent variable of bank profitability (ROA) and independent variables in the Tunisian commercial banks.

Table 1 reports the empirical results of the estimation of the equation (4). The coefficient R2 reflects strength of our regression model and is 0.9256. Thus, about 93% of the bank profitability is explained by the capital ratio, the general operating charges, the ownership structure, the representatives of the State and public institutions and the real interest rate.

Table 1: The determinants of the economic profitability (ROA) of the Tunisian commercial banks

ROA				
variables	**Coef.**	**Std.Err.**	**t**	**Prob**
RC	.1851463	.0274741	**6.74**	**0.000**
CGE	-.5084836	.177381	**-2.87**	**0.004**
RL	-3.06e-07	9.83e-07	-0.31	0.756
TAIBQ	.001044	.0039239	0.27	0.790
GOVT	-.0110699	.0030423	**-3.64**	**0.000**
TAICA	.0004147	.0005395	0.77	0.442
ADPUB	.0242756	.0079764	**3.04**	**0.002**
ADINST	-.0085541	.0105731	-0.81	0.418
ADETR	.0002511	.0057339	0.04	0.965
DUAL	.0015402	.0019752	0.78	0.436
PIB	.0017995	.0227002	0.08	0.937
INF	.0895983	.0602378	1.49	0.137
TIR	.1769258	.0720555	**2.46**	**0.014**
Constante	-.018015	.0281721	-0.64	0.523
Number of obs	190			
R^2 between	0.9256			
Wald chi2 (13)	123.01			
Prob > chi 2	0.0000			
The Hausman test	0.5305			

Source: Author estimates

Note: t-statistics are in bold if they are statistically significant at 10 % or less.

The results obtained from the STATA software, presented in the table above, show that the capital ratio, the general operating charges, the ownership structure as well as the representatives of the State and public institutions within the board of directors are significant at the 1% confidence level while the real interest rate is significant at the 5% confidence level. The rest of the variables are not significant.

The capital ratio (RC) appears to be an important determinant of profitability. It has affected positively and significantly the profitability of the Tunisian commercial bank. This proves that the well-capitalized banks are considered less risky and therefore can access funds on better terms and realize high profits. This result, as expected, is consistent with the analyses of Samad (2008).

The general operating charges (CGE), as expected, have a negative and statistically significant impact on the bank profitability. This result is identical to those of Benti and Ababa (2008).

As for the liquidity ratio (RL), it affects bank profitability negatively, but this effect is insignificant. This result can be explained by the fact that it is better for the bank to make less profits to grant unpaid loans. This result is in contradiction with the literature which would want that they are positively related.

The empirical results show that the effect of bank size (TAIBQ) on profitability is not important. We find a positive but not significant relationship with the profitability of assets. This result can be supported by the fact that the large banks benefit from diversification opportunities and can pursue riskier investments that can produce in turn high profits. This result is consistent with Hannan and Prager (2009). But this variable is non-significant implying that the size factor does not directly affect the profitability of Tunisian commercial banks.

A negative and statistically significant relationship was detected between the ownership structure (GOVT) and the profitability of the Tunisian banks. This suggests that the involvement of the State as shareholder seems to be negatively correlated with the profitability of the Tunisian commercial banks such found by Aburime (2008).

Contrary to what is intended, the size of the board of directors (TAICA) has a positive and insignificant impact on the profitability of assets. This result corroborates the conclusion of Adams and Mehran (2003), which stipulate that if the size of the board is small, its members can be easily manipulated and influenced by the leader. However, the non-significance of the variable implies that the size of the board does not necessarily lead to an increase in the profitability of the Tunisian commercial banks.

In the present study, we also found that the percentage of administrators who represent the State and public institutions (ADPUB) and the profitability of the assets of the Tunisian banks are positively correlated but not significantly. Such result is at odds with the analysis of Mamoghli and Dhouibi (2009) which has detected a negative and statistically significant relationship.

The presence of institutional administrators (ADINST) on the board of directors has negatively and insignificantly affected the profitability of the Tunisian banks. This can be explained by the fact that these administrators are not involved in an active way in the governance of the bank.

Our results also show that the percentage of foreign administrators (ADETR) reveals a positive and insignificant effect on the profitability of assets. This result, as expected, confirms the findings of Beck and Levine (2004).

Referring to the duality, it has positively but not significantly influenced the profitability of the Tunisian banks. This can be explained by the fact that the dual function allows a better knowledge of the firm environment and a better competence of the president of the board. This result is at odds with the conclusions of Mamoghli and Dhouibi (2009) which suggested that duality has no effect on the profitability of the Tunisian banks.

Turning to the indicators of macroeconomic conditions, we see that the involvement of the growth rate of real gross domestic product (PIB), as a macroeconomic factor, in the explanatory variables of the profitability of assets is not statistically proven. However, it would describe a weak positive relationship.

The relationship between the inflation (INF) and the profitability of the Tunisian banks is positive but not significant. Such result, as expected, implies that the Tunisian banks in an inflationary environment tend to not pull profits. Ben Naceur (2003) found the same result.

Finally, in accordance with the results of Vong and Chan (2009), the real interest rate (TIR) is linked positively and significantly with the profitability of assets (ROA).

Conclusion

The panel data analysis allowed us to estimate the relationship between the bank profitability (measured by the economic profitability) and a variety of explanatory factors classified into internal and external or macroeconomic variables in a sample of ten Tunisian commercial banks observed over the period 1990-2008.

Thus, this analysis aims to find among the profitability factors those that appear most relevant to explain the profitability of the Tunisian commercial banks.

However, the study of the determinants of the profitability of the Tunisian commercial banks allowed us to identify a number of conclusions:

i. The capital (RC) is one of the best factors that considerably affect the profitability of the Tunisian commercial banks. This may indicate that the well-capitalized banks have higher profitability, which is consistent with Ben Naceur and Goaied (2008).
ii. A negative and significant coefficient on the general operating charges (CGE). This result implies that the Tunisian banks should manage properly their general expenses.
iii. A negative and significant sign on the ownership structure (GOVT) coefficient meaning that private owned banks generate better profitability that their state counterparts. This result confirms the supremacy of private banks in a matter of performance which is a clear signal to spur the privatization of state owned banks.

In this study and contrary to the expectations, the results showed that despite the great importance given to the board of directors, it doesn't have a dominant role in the Tunisian commercial banks.

Turning to the macroeconomic indicators, the empirical results indicated that: only the real interest rate (TIR) which has a positive and significant impact on the economic profitability (ROA) of the Tunisian banks such as found by Vong and Chan (2009).

Reference

Aburime, U.T. (2008). Determinants of Bank Profitability: Industry- Level Evidence from Nigeria. *Working Paper*, Department of Banking and Finance, University of Nigeria.

Adams R. and Mehran H. (2003). Board structure, banking firm performance and the Bank Holding Company organizational form. *Federal Reserve Bank of Chicago Proceedings*, May, 408-422.

Athanasoglou, P., Delis, M. and Staikouras, C. (2008). Determinants of bank profitability in the South Eastern European region. *MPRA Paper*, (10274), September.

Beck, T. and Levine, R. (2004). Stock markets, banks and growth: Panel evidence. *Journal of Banking and Finance*, Vol.28, 423-442.

Ben Naceur, S. (2003). The determinants of the Tunisian banking industry profitability: panel evidence. *In: Paper presented at the Proceedings of the Economic Research Forum (ERF) 10th Annual Conference, Marrakesh–Morocco*, December.

Ben Naceur, S. and Goaied, M. (2008). The Determinants of Commercial Bank Interest Margin and Profitability: Evidence from Tunisia. *Frontiers in Finance and Economics*, Vol.5, (1), April.

Benti, Y. and Ababa, A. (2008). Determinants of Private Banks' Profitability in Ethiopia: Panel Data Evidence. *working papers*, March.

Berger, A. N. (1995). The Profit-Structure Relationship in Banking – Tests of Market-Power and Efficient-Structure Hypotheses. *Journal of Money, Credit and Banking*, vol.27, (2), May, 404-431.

Berger, A.N. and Di Patti, E.B. (2003). Capital Structure and Firm Performance: A New Approach to Testing Agency Theory and an Application to the Banking Industry. *The Federal Reserve Board, Finance and Economics Discussion Series (FEDS)*, N°2002-54, 1-38.

Berger, A.N and Di Patti, E.B (2006). Capital structure and firm performance: a new approach to testing agency theory and an application to the banking industry. *Journal of Banking and Finance*, Vol.30, 1065-1102.

Boujenoui, A., Bozec, R. and Zeghal, D. (2004). Analyse de l'évolution des mécanismes de gouvernance d'entreprise dans les sociétés d'Etat au Canada, *Finance Contrôle Stratégie*, Vol.7, (2), Juin, 95-122.

Bourke, P. (1989). Concentration and other determinants of bank profitability in Europe, North America and Australia, *Journal of Banking and Finance*, vol.13, 65-79.

Claeys, S. and Vander Vennet, R. (2008). Determinants of bank interest margins in Central and Eastern Europe: A comparison with the West, *Economic Systems*, vol.32, 197–216.

Chortareas, G.E., Garza-Garcia, J.G. and Girardone, C. (2010). Banking Sector Performance in Some Latin American Countries: Market Power versus Efficiency, Banco de Mexico, *Working Papers*, N° 2010-20, December.

Creane, G., Goyal, R., Mobarak, M. and Sab, R. (2004). Financial sector development in the Middle East and North Africa, *IMF Working Paper*, International Monetary Fund.

Cornett, M.M., Guo, L., Khaksari, S. and Tehranian, H. (2010). The impact of state ownership on performance differences in privately-owned versus state-owned banks: An international comparison. *Journal of Financial Intermediation*, Vol.19, January, 74-94.

Cotter, J.F., Shivdasani, A. and Zenner, M. (1997). Do independent directors enhance target shareholder wealth during tender offers?. *Journal of Financial Economics*, vol.43, (2), 195-218.

Demirguc-Kunt, A. and Huizinga, H. (1999). Determinants of commercial bank interest margins and profitability: some international evidence, *World Bank Economic Review*, Vol.13, 379–408.

Dietrich, A. and Mattig, A.W. (2008). The effect of changes in market structure on competition and firm profitability: Does market maturity matter ?. *Financial Intermediation Working Paper*, May.

Dinger, V. and Hagen, J.V. (2004). Bank market liberalization, market structure and profitability: The case of vertically non-integrated banking industries. *Center for European Integration Studies*, University of Bonn, December.

Fama, E.F. and Jensen, M.C. (1983). Separation of ownership and control. *Journal of Law and Economics*, vol.26, 301-325.

Flamini, V., McDonald, C. and Schumacher, L. (2009). The Determinants of Commercial Bank Profitability in Sub-Saharan Africa, *IMF Working Paper*, African Department, (15), January

Gerlach, S., Peng, W. and Shu, C. (2003). Macroeconomic Conditions and banking performance in Hong Kong: A Panel Data Study. *Hong Kong Monetary Authority Research Memorandum*, April

Hannan, T.H. and Prager, A.R. (2009). The profitability of small single-market banks in an era of multi-market banking. *Journal of Banking and Finance*, Vol. 33, 263–271.

Havrylchyk, O and Jurzyk, E. (2005). Profitability of foreign banks in central and Eastern Europe: Does the entry mode matter?. *BOFIT Discussion Papers Bank of Finland*, Institute for Economies in Transition.

Heffernan, S. and Fu, X.M. (2008). The Determinants of Bank Performance in China. *Working Paper Series*, Augus.

Iannotta, G., Nocera, G. and Sironi, A. (2006). Ownership Structure, Risk and Performance in the European Banking Industry. *Institute of Financial Markets and Institutions*, March.

Jensen, M.C. (1993). The modern industrial revolution, exit, and the failure of internal control systems, *Journal of Finance*, Vol.48, 831- 880.

Kaymak, T. and Bektas, E. (2008). East meets west? Board characteristics in an emerging market: Evidence from Turkish Banks. *Corporate Governance*, Vol. 16, (6), 550-561

Kor, Y.Y. and Misangyi, V.F. (2008). Outside directors industry-specific experience and firm's liability of newness. *Strategic Management Journal*, Vol. 29, (12), 1345-1355.

Kosmidou, K., Tanna, S. and Pasiouras, F. (2005). Determinants of profitability of UK domestic banks: panel evidence from the period 1995–2002. *In: Proceedings of the 37th Annual Conference of the Money Macro and Finance (MMF) Research Group*, Rethymno, Greece, September.

Lipton, M. and Lorsch, J. (1992). A modest proposal for improved corporate governance, *Business Lawyer*, Vol. 48, 59-77.

Lloyd-Williams, D.M, Molyneux, P. and Thornton, J. (1994). Market structure and performance in Spanish banking. *Journal of Banking and Finance*, Vol.18, 433-443.

Mamoghli, C. and Dhouibi, R. (2009). Quel est l'impact de la propriété publique sur la rentabilité des banques ? Cas des banques tunisiennes, *DIALNET OAI Articles*, Spain, http://dialnet.unirioja.es/servlet/oaiart?codigo=2942262

Mansouri, B. and Afroukh, S. (2009). La rentabilité des banques et ses déterminants : Cas du Maroc. *Working Papers*, Economic Research Forum.

McConnell, J. and Servaes, H. (1990). Additional evidence on equity ownership and corporate value, *Journal of Financial Economics*, Vol. 27, 595-612.

Megginson, W. (2005). The economics of bank privatization, *Journal of Banking and Finance*, Vol. 29, (8), 1931-1980.

Mendes, V. and Rebelo, J. (2003). Structure and Performance in the Portuguese Banking Industry in the Nineties, *Portuguese Economic Journal*, vol.2, 53-68.

Molyneux, P. and Thornton, J. (1992). Determinants of European bank profitability: a note. *Journal of Banking and Finance*, Vol.16, 1173-1178.

Mouley, S. (2000). Les enjeux internationaux de la restructuration du système bancaire tunisien. *L'Expert,* N°65-66, Juillet, 18-20.

Oxelheim, L. and Randoy, T. (2003). The impact of foreign board membership on firm value, *Journal of Banking and Finance*, Vol.27, 2369–2392.

Park, K.H. and Weber, W.L. (2006). Profitability of Korean banks: Test of market structure versus efficient structure. *Journal of Economics and Business*, vol.58, 222-239.

Pasiouras, F. and Kosmidou, K. (2007). Factors influencing the profitability of domestic and foreign commercial banks in the European Union. *Research in International Business and Finance*, Vol.21, 222–237.

Perry, P. (1992). Do banks gain or lose from inflation, *J. Retail Bank*, Vol.14, (2), 25–40.

Pi, L. and Timme, S.G. (1993). Corporate control and bank efficiency. *Journal of Banking and Finance*, Vol.17, 515-530.

Pound, J. (1988). Proxy contests and the efficiency of shareholder oversight. *Journal of Financial Economics,* Vol.20, 237-266.

Rechner, P. and Dalton, D.R. (1991). CEO duality and organizational performance. *Strategic Management Journal*, Vol.12, 155-160.

Rosenstein, S. and Wyatt, J.G. (1990). Outside directors, board independence, and shareholder wealth. *Journal of Financial Economics*, vol.26, 175-191.

Samad, A. (2008). Market structure, conduct and performance: Evidence from the Bangladesh banking industry. *Journal of Asian Economics*, vol.19, 181-193.

Sayilgan, G. and Yildirim, O. (2009). Determinants of Profitability in Turkish Banking Sector: 2002-2007. *International Research Journal of Finance and Economics*, (28).

Schiehll, E. and Bellavance, F. (2009). Boards of directors, CEO ownership, and the use of non-financial performance measures in the CEO bonus plan. *Corporate Governance: An International Review*, Vol.17, (1), 90-106.

Vong, A.P.I. and Chan, H.S. (2009). Determinants of Bank Profitability in Macao. *Working Paper Series*, University of Macau.

Whidbee, D.A. (1997). Board composition and control of shareholder voting rights in the banking industry. *Financial Management*, Vol.26, (4), hiver, 27-41.

Wong, J., Fong, T., Wong, E. and Choi, K-F. (2007). Determinants of The Performance of Banks in Hong Kong. *Hong Kong Monetary Authority Research Memorandum*, April.

Zamiti. M, (1998). Les réformes du secteur financier en Tunisie : Description et Evaluation. *Cahier de recherche*, CETAI, HEC-Montréal.